PERSONNEL
Journal

The Magazine of

LABOR RELATIONS AND PERSONNEL PRACTICES

Published by PERSONNEL RESEARCH FEDERATION
Lincoln Building, 60 East 42nd Street, New York City

Volume 20 *Number 2*

Contents for June, 1941

The Psychology of Safety ..... *Charles S. Slocombe* 42

What is a Job Worth? ..... *J. O. Hopwood* 51

Medical Care for Employees ..... *Franz Goldmann* 66

Reprimanding Employees ..... *James J. Jackson* 73

EDITORIAL BOARD

WALTER V. BINGHAM, War Department, Washington, D. C.
DOUGLAS FRYER, New York University
HOWARD W. HAGGARD, Yale University
WESTLEY C. MITCHELL, National Bureau of Economic Research
EDWARD K. STRONG, JR., Stanford University
LOUIS L. THURSTONE, University of Chicago
MARY VAN KLEECK, Russell Sage Foundation
CLARENCE S. YOAKUM, University of Michigan

CHARLES S. SLOCOMBE, *Managing Editor*

Copyright, 1941 by The Personnel Research Federation

There is a Difference Between the Ability and the Willingness of Workers to Abide by the Safety Principle. When the First Factor is the Main Cause of a High Accident Rate, Special Safety Means Must be Used.

The Psychology of Safety

By Charles S. Slocombe
Personnel Research Federation
New York, N. Y.

When you go into the reading room of a library you expect to find quiet, and to act quietly—no laughing out loud, no talking, no stamping of feet, no dropping of books.

There may or may not be signs, requesting silence, but there is almost silence.

This behavior of people in libraries is brought about because they go there to read, and they cannot concentrate on their reading if there are distracting noises. Anyone who fails to behave quietly, therefore, immediately earns the disapproval of all others in the room. Seldom or never is it necessary for the librarian to warn or discipline anyone, because there is a kind of unorganized self discipline among the people present.

Self Discipline of Workers

Safety in factories is in many ways similar. Workers are expected to act with care to avoid accidents, so that they will not injure themselves, or the others present, and will not upset others by the shock of seeing blood or pain.

There is a general pattern of safe behavior, which is imposed by the unorganized self-discipline of the workers.

This is the theory. But Gordon Allport, Professor of Social Psychology, has studied the behavior of people in libraries and churches, to see how far the theory holds. He finds that little incidents happen that lead to brief conversations, generally in a whisper, but which disturb the silence.

A girl may drop her handkerchief, and a man picking it up may say, "Is this

yours, miss?" and she reply, "Yes, thank you." Or a chair may have a hat on it, and no others being vacant, a man may say to the occupant of the next chair, "Is this seat taken?" and have the reply, "No. I'll remove my hat".

Wake Up, Pa, You're Snoring

Or in church a woman may wake up her husband during the sermon with the words, "Wake up, Pa, you're snoring." A small boy may say to his mother during collection time, "Say Ma, can I have a nickel?" Or two old maids may whisper comments on the new hat the preacher's wife has on.

These are little incidents that, more or less, have to happen, but their happening does not mean that the people in libraries or churches are not in general "conforming" to the general principle of silence. Allport in his studies has noted the frequency of occurrence of these brief conversations, and has developed curves, by the shape of which he can tell whether there is general conformity to the rule of silence, in spite of its being broken occasionally.

Similarly in a factory, though the safety principle may hold, there may be occasional accidents of greater or less seriousness. And again it is possible to determine by statistical means, from the frequency of accidents, whether the workers are conforming to the safety principle, or trying to.

Principle Determines Safety Work

In safety work the principle of conformity is most important, because it determines the type of safety effort that must be made. Generally if there are many accidents, but the curve shows conformity to the safety principle, the accidents are due to hazards in the working conditions. And the safety effort must be directed to reducing them. But whether there be few or many accidents, but the curve shows non-conformity to the safety principle, then the safety effort must be directed to bringing about conformity.

The basis of the idea of conformity is that any departure from it, such as the incidents in the church or library, or accidents in a factory happen by chance. They may therefore happen to anyone, and everyone has an equal chance of their happening to him or her.

But Newbold, studying accidents in munition factories in England during the last war, came across the fact that some people in factories had an unduly large share of accidents. They were not conforming to the safety principle.

He then used a mathematical formula to study the accident frequency in factories. If there was conformity, then safety work was to be of one type, if there was non-conformity it was to be of another type.

As, among a group of workers, the number of accidents is very small, if there is conformity, it is expected that the accidents will be distributed among the workers in accordance with the law of small probabilities, known as Poisson's law. If the

distribution is not according to this law, by a wide margin of difference, then that is proof that there is non-conformity, that is that there are some workers present who are incapable of avoiding accidents.

An example of a non-conforming group of employees, taken from a study by Slocombe and Brakeman, is shown below (Table I). In this table are shown the actual number of accidents found in the records, and the number which would have been expected according to Poisson's law.

It will be seen that the difference between these two distributions is that there are too many people having very few accidents, not enough people having a medium number, and too many having a large number of accidents. This is a typical non-conformity distribution.

We will defer further discussion of conformity, for a period, to consider the development of the safety movement, and how conformity has come into it.

TABLE I

ACCIDENTS PER OPERATOR	OPERATORS HAVING THESE ACCIDENTS		
	Actual Number	Expected Number	Difference
0	217	101	116
1	326	315	11
2	569	493	76
3	458	514	−56
4	258	402	−144
5	145	252	−107
6	99	131	−32
7	86	59	27
8	46	23	23
More than 8	96	10	86
Total.....	2300	2300	0

Development of Safety Movement

WHEN the safety movement became organized some thirty years ago, it was found that working conditions were bad. Workers in mines were killed by rocks falling on them, because roofs of tunnels were not properly propped up; they were killed by explosions of gas and mine dust; workers in steel mills fell into cauldrons of molten iron; longshoremen had bales of cotton dropped on their heads; workers in meat canneries lost their fingers in chopping machines; welders got hot sparks in their eyes; and machine tenders slipped on greasy floors, and dropped pieces of heavy material on their toes.

So the safety movement set to work to reduce the hazards of work. Proper propping of mine tunnels was studied and insisted on by government inspectors; studies of mine explosions were made, and preventative measures developed; the steel industry engineers redesigned machinery and methods to eliminate every possible chance of accident to steel workers; winches on docks were improved, and winchmen instructed how to prevent loss of control of loads; guards were placed on

machines in meat canneries, and other factories; goggles and shields were invented to guard eyes; and non-skid flooring material, and safety shoes were invented to prevent injury to legs and feet.

In fact the safety movement went to work, through its safety engineers, to make working conditions as safe as possible, and reduce to a minimum the possibility of accidents.

The National Safety Council's Job

In this movement, the insurance companies, who were carrying workmen's compensation for injuries, and government departments of factory inspection, played a most important part. The National Safety Council, backed by insurance companies and industrial companies, was the agency entrusted with the job of promulgating the idea of safety, far and wide.

As a result of this effort, which is being continued, every piece of machinery going into a factory today, and every method of production developed, takes into consideration the safety of workers concerned, and reduces to a minimum the possibilities of accident.

This aspect of safety work was started before the principle of conformity was understood. It is a purely engineering project, containing no element of psychology. But it is probably responsible for saving more lives than any other aspect of safety work so far undertaken.

The Mass Appeal Movement

Almost concurrent with the development of this safety engineering, there developed another aspect of the safety movement. This was an attempt to persuade workers to conform to the safety principle.

No mathematical analyses of individual accident frequencies were made. But workers were urged by various means to act safely; to wear their goggles; to wear safety shoes; not to leave materials about that others might fall over, etc. Meetings were held in which hazards were pointed out, and means of avoiding accidents discussed, safety medals and bonuses were awarded, signs were prominently placed around factories, and every other possible form of mass appeal used.

In some plants attempts were made to get accident free periods for a month, three months or a year, or perhaps more, by means of mass appeal.

This is the stage in which the safety movement is now. It seems highly probable that most of this mass appeal effort is wasted effort, and in vain. For, in general terms, it seems that the only persons who listen to this appeal are the ones who would not have accidents anyway.

Every study that has been made of accident records, even in the companies with the best safety departments, and the lowest accident frequencies, shows the presence

of persons who do not conform to the safety principle, and go on having accidents year after year, in spite of all the appeals that are made to them.

Unless and until the safety movement learns to understand this aspect of safety work—that is the presence of non-conformists, and how to deal with them—it cannot reduce accidents to a minimum in this country.

We have called workers who have more than their share of accidents non-conformists to the safety principle. They have been called various names. The English writers and W. V. Bingham call them, "accident prone". This is an undesirable name because it carries with it the implication of having some incurable disease. They have also been called repeaters or multiple accident men.

The name does not matter very much. It is more important to recognize their presence among any group of workers, and set about to find the reasons why they do not conform to the safety principle, and to get them to do so.

The Theory of Conformity

One of the reasons why the safety movement has not accepted the theory of non-conformity, as outlined above, is that their basic assumption is that everyone is equally capable of working without accidents. The psychological theory of conformity or non-conformity makes no such assumption, but believes that there are individual differences in ability to work safely, as there are in ability to add up figures, or play the piano.

The safety movement seems to base its belief on the equality of ability to avoid accidents, but an unequal willingness to use this ability, on the fact that some plants have been able to go long periods without accidents. They say, "If this is so, it proves that there no accident prone people, for what happens to them during an accident free period?"

The fact is that most accidents are tiny ones, of not much consequence to the person injured, and not much expense to the company. The list of accidents, shown as Case I (p. 47) that happened to one man shows this plainly.

Men Who Go On Having Accidents

None of these accidents are serious, and in the accident records of the company only one in fact appears as an accident. For it is the rule in keeping accident records that only lost time accidents count. A lost time accident is one which causes the man to be away from his work more time than the remainder of the day or shift in which the accident occurs.

Most times this man only had to leave his work to go to the plant dispensary for dressings and redressings. So that even if these accidents had happened during an accident free campaign, they would not spoil the record, by showing on it.

But it has been found that such men as this, who are non-conformists to the

safety principle, having a large number of small accidents, are the ones who have the big accidents, causing serious injury or death to themselves or fellow workers.

To concentrate successfully on an accident free campaign for a long period, by mass appeal, does not really deal with non-conformists at all. They are still there, having small accidents, but no lost time ones. Everyone is concentrating on safety,

CASE 1

DATE	ACCIDENT	NUMBER OF VISITS TO DISPENSARY FOR REDRESSINGS	CLASS OF WORK
1/23/30	Right first finger bruised in machine	5	Screw machine
12/ 2/29	Cut right first finger when drill slipped, tube hit finger on machine	4	Screw machine
10/24/29	Cut right little finger on sharp part of terminal when threading on machine	3	Punch press
10/10/29	Cut right first finger on sharp part of casing when cleaning on machine	2	—
7/ 1/29	Lacerated right thumb when milling out casing. Thumb slipped and hit machine	4	Milling machine
4/16/29	Ran copper or brass sliver in left ring finger when threading units on machine	2	—
4/13/29	Lacerated left third finger with sharp part on unit when stripping	1	Assembler
1/25/29	Lacerated left third finger with sharp part of tube when assembling	2	Assembler
1/28/29	Lacerated right first finger with sharp tool on machine	4	Assembler
12/28/28	Lacerated right thumb with sharp burr on unit	2	Assembler
11/21/28	Lacerated left first finger with sharp part on unit in machine	3	Assembler
11/ 8/28	Sprained back by lifting box	2	Assembler
10/16/28	Lacerated left thumb with sharp burr on unit working on machine	2	Punch press
7/11/28	Lacerated right thumb with sharp tool in machine caused by hitting thumb on tool	2	Screw machine
3/28/28	Particle in left eye—dust from machine	1	Assembler
1/13/28	Drill slipped and hit right thumb causing laceration	4	Assembler
Total visits for redressings.....		43	

no one knows how much production is slowed, and no one knows when one of the non-conformists in the plant is going to burst out with a fatal accident.

When in such a campaign a man is seriously injured, it is quite a common practice to bring him back into the plant, if necessary on a stretcher, pay him wages, and give him some simple job to do, such as keeping time, or sorting screws, or perhaps counting the fly specks on the window.

These campaigns usually end up by everybody getting sick and tired of the safety preaching and cheating, or management decides it wants to get a little work done, or some non-conformist breaks out and kills himself, and generally a few others.

They do not prove the absence of accident repeaters, for it is possible to find them having their accidents, as usual, at the beginning, in the middle or at the end of such a mass appeal no accident period.

It would be strange if they were not so found. Every psychologist today knows that there are individual differences in abilities, mechanical ability, clerical ability, intelligence, social adjustment, etc. Every personnel man, though he does not talk

TABLE II

KIND OF ACCIDENT	NUMBER OF LOST TIME ACCIDENTS	NUMBER OF MINOR ACCIDENTS
Fatal	2	0
Loss of hand	2	0
Loss of fingers	12	1
Loss of eye	2	0
Fracture of arm	4	0
Fracture of hand	2	3
Fracture of finger	11	28
Fracture of leg	1	0
Fracture of ankle	3	0
Fracture of foot	5	8
Fracture of toe	25	19
Fracture of nose	1	0
Fracture of collar bone	1	0
Fracture of rib	4	1
Infection	29	207
Injury to eye	14	3345
Contusion	36	1931
Laceration or cut	52	10470
Sprain or strain	23	6491
Hernia	16	13
Electric shock	1	3
Burns by acid	0	67
Burns by molten metal	0	79
Burns by electricity	2	17
Burns by other causes	4	1276
Misc.	9	1153
Total	259	19270

about individual differences, bases his policies of hiring, transferring, promoting and discharging on the differences in ability of workers. It would be strange indeed, if there were not individual differences in ability to avoid accidents.

Ability vs. Willingness

THE safety movement in general has not recognized this fact, but has assumed equal *ability* among all workers to avoid accidents, and has thought that the differences between workers was in their *willingness* to avoid accidents.

We may study further cases of the lack of recognition of non-conformists to the

safety principle among workers—that is accident prone people, repeaters, or whatever they may be called, and their small accidents.

TABLE III

SHOWING DISTRIBUTION OF 2641 ACCIDENTS AMONG 625 EMPLOYEES

(All accidents, major and minor, included)

NUMBER OF ACCIDENTS PER MAN	NUMBER OF MEN HAVING ACCIDENTS	TOTAL NUMBER OF ACCIDENTS
1	184	184
2	110	220
3	88	264
4	60	240
Total.....	442	908
442 safe employees had 908 accidents (average 2.1 each)		
5	39	195
6	37	222
7	19	133
8	16	128
9	14	126
10	9	90
11	6	66
12	5	60
13	7	91
14	3	42
15	2	30
16	6	96
17	2	34
18	4	72
19	2	38
20	1	20
21		
22	1	22
23	2	46
24	3	72
25	1	25
26		
27	1	27
28		
29	1	29
30		
31		
32	1	32
33		
34		
35		
36		
37	1	37
	183	1733
183 unsafe employees had 1733 accidents (average 9.5 each)		

In Table II we show the accidents for a year in a plant with 6600 employees. It will be seen that there are only 259 lost time accidents, but a total of no less than 19,270 minor accidents, which required attention of a doctor or nurse.

Champion Had 37 Accidents

It is obvious that you cannot find many repeaters when 6600 workers have only 259 major accidents. A man cannot be expected to be so accident prone that he breaks his leg three times a year. But when the minor accidents are taken into account it is found that on the average each employee had three accidents a year. (The champion had 37).

These were unevenly distributed among employees, and the presence of a proportion of people lacking in ability to avoid accidents was very evident. It was further found that the people with a lot of little accidents were the ones, who were having the serious accidents. So that in order to reduce the 259 lost time accidents it would be necessary to deal with the workers who were having most of the 19,270 small accidents.

Table III shows the distribution of these small accidents among a sample of 625 employees. From this it was estimated that there were some 900 non-conformists or accident repeaters in the plant. This is a typical distribution of accidents in a plant with a good safety record, and is probably representative of the situation existing in most industrial plants in America.

(To be continued in the next issue)

The Measure of a Job in a Company is the Relative or Comparative Importance of the Contribution It Makes to the Success of the Enterprise. This Must Be the Prime Base of Any System of Job Evaluation.

What *is* A Job Worth?

By J. O. Hopwood
Philadelphia Electric Company
Philadelphia, Pa.

What is the status of a man's job—What is its worth? Is he in an enterprise, or merely selling labor to it? Probably no other question in industrial relations has been more discussed and more confused. A great deal has been of late about "job factoring," and people go about "rate shopping" in the name of "Job Evaluation." The consequences affect dealings, morale, costs and incomes, and are serious. It is time that the validity of some of the claims being made should be challenged by objective analysis.

Job Evaluation in the Last War

These comments are prompted by experiences in dealing with the evaluation problem, and contributing to its literature from its inception in industry more than twenty years ago. Government military and civil service organizations and classification boards established job specifications and classifications with graduated rates of pay in various lines of service years before such things attracted any attention in the industrial world. In 1918, in the Emergency Fleet Corporation, Mr. George L. Tirrell, then in the office of Mr. Howard Coonley, who was Vice President in Charge of Administration, directed the preparation of a manual, "Salaries and Titles for Positions in the Emergency Fleet Corporation." This manual graded the positions and graduated the compensation rates accordingly. There were similar manuals in other Government services, but this one was a good model for an industrial corporation.

From the introductory statement of this manual the following remarks are quoted:

"The purpose is to give to administrative officers—a specific guidebook which will enable them to act uniformly in all matters which pertain to salaries and titles.

"The entire plan and operating system are based upon the fundamental idea that duties performed must be the measure of value. Positions, and not persons, are being dealt with; and it is the work being done, and not the person doing it, which determines the appraisal both of salary and title.

"A range of salary, rather than an absolute fixed rate, is provided for each kind of work. In this respect the plan differs from the system of 'prevailing rates' as applied throughout the industrial world to the skilled trades and to unskilled labor. Otherwise, the principle is similar. Experience has shown that the fixation of an absolute rate for a position tends to remove the incentive for the best effort, while the range in salary provides reasonable opportunity for rewarding meritorious service."

Duties Performed Is Measure of Value

THEREIN is the substance of job evaluation and its meaning in administration for a well-balanced organization. "Duties performed must be the measure of value" and administration for well-balanced organization must embrace the principle in a unified plan. This is true for any enterprise, and in our Company work, as well as in my own published discussions to promote the work, this has been the basic idea.

Thus, jobs were evaluated earlier than has been credited by any of the recent writers on the subject. In a book, "Analysis and Classification of Performance," in 1922, I first stated the principle, further developed in later publications (various articles and the manual, "Salaries, Wages and Labor Relations," Ronald, 1937), that scope of functions is the measure of the effects of a job in an organization, and therefore the common basis of appraisal, which is job evaluation in a true sense—that is, scope of duties performed.

Not Market Price

HOWEVER, the word "evaluation" in this connection seems hard for some people to dissociate from the idea of absolute dollars and cents—How much money should we pay the man as an absolute price for his work? Any sort of formula or device to get an answer from a congomeration of factors, ratings, quotations and allowances for this and that goes by the name "Job Evaluation" and has acceptance. Ideas of paying for what the job is supposed to take out of a man, discomforts, the market "price" and bargaining supersede the thought of objectively analyzing the functions and gauging the coverage of his work in the integrated enterprise—the measure of his job, as the basis of relative productive worth. What is worth?

As to a job, can it be anything else than its value in terms of its relative effect in an enterprise?

Every few years brings its wave of fancies, fads and fallacies in industrial relations. Two decades ago the employment field was invaded by pseudosystems of character analysis. People were reading books and taking courses in judging applicants for employment on features of face, complexion, head, body build, etc. and their selections were called "successful." In a personnel association meeting an employment man said he could tell a machinist by the way he walked into the employment office. Such remarks were common and seriously made. Most of the stuff, of course, was residue from old pseudosciences—phrenology, physiognomy, and what-not in new clothes, always interesting to the credulous like astrology is to many people to-day. Education, even in many college curricula, has not been enlightening in these regards.

That movement has subsided but others have followed and something of the same kind of thinking is popular now in "job factoring" in various attempts at job evaluation. Accordingly, all that is necessary is to take a job apart into so-called "factors," or so consider it, pool the ratings of several people as to how much each factor is worth in points, combine these "values" and you have the worth of the job in points which are convertible into dollars and cents. The "factors" used in various systems, it should be noted, include many diverse items including education, learning time, experience, character traits, special abilities, energy demands—physical and mental, hazard, clothing expense, physical working conditions, public contacts, supply of workers, and almost everything which a job can be said to require, except possibly the kind of breakfast food the encumbent should eat. The whole conglomeration represents confusion of ideas of job evaluation, selection of employees, merit rating and other considerations.

Beware of False Theories

If we are going to solve a problem, we must get down to the realities of the case and beware of false theories and confusion. Selecting individuals for jobs is one problem; rating individuals as to their proficiencies in their jobs is another, and evaluating the different jobs as to their coverage in the work of the enterprise is still another. They require different observations.

Selection of individuals for jobs calls for knowledge of aptitudes and abilities required in the jobs and possessed by the individuals, as far as they can be determined, to answer the question, Can they do the work successfully?

Rating individuals at to proficiencies calls for observations of actual performances and attitudes, with respect to the requirements in specific situations to answer the question, How well do they actually do the work, and meet the environmental conditions and associations? It is not a question as to what aptitudes or abilities they may have, but as to how they actually display necessary skills, and otherwise

perform the functions and harmonize with the circumstances or working conditions in the specific situations.

Human functions are activities, mental and physical, not the aptitudes and abilities which may be required for their performance. Jobs consist of specific functions, and they cannot be identified as entities nor evaluated by aptitudes and abilities involved.

What Is a Man's Job?

EVALUATING the different jobs as to their coverage in the work of an enterprise is purely a problem in gauging their functional scope in the enterprise to answer the question, How much does the person with full performance in the job effect or contribute to the work of the enterprise—how much does the job count? What is the scope of the job in the work of the enterprise?

These three questions are basic in industrial relations—

1. Can he do the work? (Selection)
2. How well does he do it? (Employee Rating)
3. How much does it count? (Job Evaluation—taking the job's measure)

They are not parallel questions, and they cannot be answered in the same terms. What, on the whole, does he do in the enterprise in which he is employed—that is a man's job, and as either salary earner or wage earner this is true. Job measurement must be in terms of functional coverage because:

1. A job consists of human functions. It is an organic activity subject to biological laws by which
2. It is a unit of organization—differentiated from and integrated with the other jobs in an enterprise and
3. One job is more effective than another if its functions are broader in scope.

These are basic truths of science which cannot be denied with reason nor violated in a valid job evaluation. Yet many attempts in this field have produced "measuring sticks" with so-called "factors" for such things as honesty, loyalty, effort, working conditions, expenses, public contacts, scarcity of workers, etc., entirely ignoring fundamental differences between relevant and irrelevant considerations. What is worse, many of these schemes have been sold to industrial managers by professional consultants or other exponents, and the names of companies in which a plan is used are generally given more weight in the publicity than standards of validity.

One pretext made in a trade association committee was that it is necessary to rate jobs in such terms with "point" values to be concrete in labor negotiations, and anything the employee believes to be right about his job is right. Years ago we had hopes of deliverance from such ideas of "management."

The answer to an analytical problem may be used in bargaining, but it is not

obtained by bargaining, and it need not be argued that honesty of purpose is the first requisite of any constructive undertaking. This is compliance with established knowledge and fact finding. It is the method of science and the scientific method can be applied to the solution of any problem. In so far as we can so establish facts, there can be no doubt. They may not be sufficient to complete the solution but they are solid as far as they go.

Further than this, we must rely upon judgment. This is true in any field of engineering or applied science. Here, of course, is room for disagreement but most of the confusion in the field of job evaluation is brought about by ignoring what is already known about human functions and the laws of organization and failure to seek the facts of a situation in these terms.

Is Job Evaluation Scientific

IT HAS been said that there is nothing scientific about job evaluation, and that it may be systematic but must be entirely arbitrary. Therefore, one idea is as sound as another, and you may take whichever one you like best. On the other hand, a college professor says "point systems" are scientific, more so than "grading systems."

A prominent statistical organization has published the statement that "Grading consists simply of arranging jobs in order of increasing importance or difficulty as determined by the judgment of the person or persons charged with the task of classification." ("Studies in Personnel Policy" No. 19, National Industrial Conference Board, p. 7.) Grading, as we know it, is just the reverse. The job is first recognized as a functional entity in an organization as a whole. Then, it is placed among the other jobs in the sequence of functional scope after a thorough analysis of the organization as consisting of all of the jobs in it. Relative importance is revealed by arrangement in this graded order from factual evidence of organization relations and job analysis, in so far as this is conclusive. If facts are insufficient, judgment is necessary, but many placements are positive from direct observation and grading.

When the duties or activities of a number of jobs in any line of work have been itemized sufficiently, comparisons will show similarities and differences as to scope. Comparison between the skilled mechanic and his helper, for example, will show that the mechanic performs a wider range of operations on his own resources in the use of machines and tools. He works with precision and skill acquired by close application for a longer time. He reads instructions and blue prints, making technical interpretations from knowledge acquired by training and experience, and gives directions to his helper. This is factual evidence that his functions are broader than those of his helper. The same kind of comparison can be made as to office jobs—between the clerk and assistant clerk, the stenographer and junior stenographer. These are simple cases and there is no doubt about the differences.

Jobs Can Be Arranged in Sequence

ALL cases are not so simple, but various facts established by a survey will show differences in scope in the same manner, and in any line of work the jobs can be arranged in sequence up to the supervisor. Division and subdivision of the organization shown by working out the organization chart, establishes facts as to the succession in the coverage of administrative positions from the chief executive to the lowest ranking supervisor. We have the basic fact then that a gradation in scope of jobs exists from the chief executive's position down to the simplest routine type of job.

In an organization of large numbers of people we have jobs in all of the gradations which are practically distinguishable, except in some of the higher levels. This also is a basic fact. The gradations can be represented by a scale of grades for the entire range. It follows therefore that since we have jobs in all of the gradations (with some gaps near the top of the scale) and a great deal of factual evidence of differences in functional scope among the jobs, established by a general survey, the jobs can be placed on the graded scale by comparing one with another. Simple comparisons between jobs in the same line of work will establish their sequence on the scale, particularly by the method of paired comparisons. These placements will then serve as reference points from which to establish the locations of others until all are placed. As new jobs are created afterwards, they can be placed with reference to those already placed.

Because an organization is a unity, there is one continuous gradation of its jobs in the division of labor. Therefore, a scale representing this gradation applies to all of its various lines of work. This is another fact, not a theory, and by using the same scale of grades in grading the jobs in the various lines of work, co-ordination is established. Jobs in different lines of work and different departments of work, but of the same scope of functions are thus given equal standing.

Practical Illustration

AS ILLUSTRATED by the following partial lists, the gradation is represented by the jobs which follow in sequence. The jobs represent the grades and serve as a measuring scale for other jobs. Any series of jobs which has been studied and placed in this way represents the measuring scale so that jobs of various types in different departments can be used in applying the scale to other jobs, and it is one gradation scale which applies to all if extended on up to chief executive.

Plant Jobs	*Office Jobs*
9. Chief Electrician	Accountant
8. Assistant Chief Electrician	Cost Analyser
7. Chief Switchboard Operator	Senior Clerk
6. Switchboard Operator	Bookkeeper
5. Head Auxiliary Operator	Clerk A

4. Auxiliary Operator	Inventory Man
3. Auxiliary Operator, 2nd Class	Clerk B
2. Exciterman	Key Punch Operator
1. Electric Cleaner	Assistant Clerk

Job analysis and organization study of functions and relationships give objective data sufficient to establish these gradations in the particular organization with hardly any question.

Even more remarkable than the statement cited above is the further statement in the same publication, "The more scientific form of evaluation is that which is known as the 'point system.' " There is no one point system and there is very little, if anything, about point systems that reasonably can be claimed as scientific at all. Generally, it is not claimed for them and is misleading to the uninformed to say so. Any system must be judged on its own merits but there is no such thing as a number of factors common to all jobs which can be given numerical or point values which are anything but somebody's assumptions.

Point Systems

They comprise no overall objective basis for the unity or co-ordination of evaluations for an organization, such as a scale or classification representing the overall natural gradation in organized division of labor from general management down through departmental management, technical and highly skilled service on down to the simple activities of the lowest jobs. They are applied to jobs as isolated groups. Moreover, many of the so-called factors commonly used can be shown to have no relationship in fact to the scope of the functions which comprise a job in an enterprise. While factors are said to be elements or parts of jobs they are mostly peculiarities or *aspects* of jobs as wholes, often abstract terms like "physical and mental effort," "responsibility" and "working conditions." Nevertheless, we read again, "Formal job evaluation involves the use of a measuring stick composed of certain job characteristics with a definite range of numerical values or points assigned to each." ("Studies in Personnel Policy" No. 25, National Industrial Conference Board, p. 3.)

One system widely publicized as adopted by a trade association for its member companies is said to use four "factors" or variations of them as the essentials for evaluating all jobs—Effort, Responsibility, Skill and Working Conditions.

Responsibility Is Whole Job

Effort," literally, either physical or mental, is no criterion of scope of functions. How much effort a man puts into his work may reflect something for his merit rating in his job, but it has no bearing on the scope of the functions which comprise his job. All functions are physical, mental or combinations of them. They may be judged from various aspects of jobs, such as general or technical knowledge re-

quired, which may reflect their scope, but effort is not one of them and none can be measured mathematically.

"Responsibility" is everything for which a person is answerable; a duty or trust. It is the whole job. How can it be a single factor? Responsibilities or duties are itemized in job analysis and constitute the measure of value. Their scope is appraised or evaluated by direct observation with reference to other jobs and from other aspects. Status of responsibility is the end result in evaluation, not just a factor.

"Skill"—Some of the items often included under this, as well as other headings, differ from both dictionary and psychological definitions which confuse their meaning. Skill involves habit formation through practice and is one of the aspects of a job which does reflect functional scope if the activities are manipulative in nature or can be standardized. The more complex the activity the greater is the skill in mastering it and the longer is the time required. However, skill does not cover the whole range of job activities, especially in the higher positions—the varied observations, judgments, determinations, designs, appeals, etc., which are discretionary in character.

As a factor, it would reflect little as to functional scope of jobs of this character. Aspects which reflect scope of functions thus vary with jobs of different character and something other than weighing and rating factors is necessary for co-ordination in evaluating it in an organization.

"Working Conditions" constitute environment, not job functions. Certain functions are required because of working conditions but they cast little light on the functional scope of a job. Essentially the same working conditions may prevail for a number of closely associated jobs, such as those of laborers and highly skilled mechanics in the same location or different clerical positions in the same office but the job functions are widely different in scope. The idea in rating working conditions as a job factor is associated with paying for discomfort, strain, hazard, etc., but this does not take a job's measure. Working conditions are a factor in selection of people for jobs, not job evaluation.

Weighing of Factors

It is stated further in the publication referred to that a weighing of these factors in one plant might be 40–20–20–20, while in another 60–20–15–5. How could two jobs in the same organization and consisting of essentially the same functions measure differently because of difference in location? How could any such system be claimed as scientific? On the contrary, it is most arbitrary. The factors are largely arbitrary, their weighing is entirely arbitrary, their rating in a job is entirely arbitrary and the claim which has been made that greater numbers, either of such factors or ratings, means greater accuracy does not bring the result any closer to the truth as to a job's measure because they are on the wrong track.

Point System in a Bank

ANOTHER plan, as described in a university publication ("Salary Determination," Riegel, University of Michigan Press, p. 114–119) as used in a large metropolitan bank, values positions with reference to five bases of comparison—Mental Effort, Skill, Physical Effort, Responsibility and Working Conditions. These factors are essentially the same as those stated above. Fourteen positions are named as key positions. For each of these the average existing salary was ascertained when establishing the plan. Collaborators arranged the positions in ranking order for each factor and distributed the average salary for each key position among the five valuation factors according to the estimated importance of the respective factors. Thus the following tabulations are explained:

	Machine Bookkeeper	*Ediphone Operator*
Mental Effort	$17	$25
Skill	27	32
Physical Effort	17	16
Responsibility	25	21
Working Conditions	11	7
(Average Salary)	$97	$101

Comparison was made for each factor as to the ranking order of the key positions and the ranking order of their salary allotments. Three positions did not show conformity and they were eliminated from the list. The remaining eleven were used to frame five scales, one for each factor, for rating other positions by comparison.

It is noted that each point in the rating is given the value of one dollar and the scales are derived from prevailing values (assumed to be market values) when the plan is established. However, if economic conditions change, the point ratings stand but the point value is changed. Thus, it is said that the point rating of positions expresses their relative difficulty and importance, whereas the value per point reflects current economic conditions in the particular market.

Exact Values Held Absurd

THE claim that this point rating of positions expresses their relative difficulty and importance is certainly vulnerable. The irrelevant character of some factors used in taking a job's measure is pointed out above. By the ratings shown, "Physical Effort," whatever that may mean, is worth exactly $17 for a Machine Bookkeeper and $16 for an Ediphone Operator and these jobs are valued, each as a whole, at exactly $97 and $101 respectively. Other jobs are similarly valued. Such exact values in human performance by any system would be absurd.

They were obsolete in computing school averages twenty-five years ago, and these things so exactly valued in terms of money are only abstractions not specifically definable nor observable and certainly not subject to commercial exchange and

valuation by the law of supply and demand as commodities bought and sold. Dollar values for them cannot be substantiated because they do not exist objectively.

Even granting that job ratings on such a set of factors may tend to keep some rates of pay consistent on that basis, is the basis sound? Are the factors valid considerations by which to apportion returns to participants in a productive enterprise? Do they take a job's measure?

Guessing the Differences

Does a vice president in charge apply more mental effort, more skill, more physical effort, and have different working conditions than a chief engineer or department head under him? How could you show any difference between the two jobs as to these requirements and rate them accordingly? It cannot be done. Where is the objective difference then? It is in the jurisdiction of the jobs. The vice president in charge covers not only control of the operations under the chief engineer but several other departments or subdivisions also. His functions have broader scope and this means greater total responsibility.

As between these two jobs you could itemize their chief functions and rate them in points and show the one greater than the other on this basis, but this is only a way of guessing the difference. There is no exact measure, of course, but when we have a number of positions as heads of divisions and subdivisions in an organization their relative coverage can be observed and indicated as with other types of jobs.

Certainly physical requirements and working conditions are not criteria of accomplishment of people in various jobs. A man necessarily does not make a greater achievement because he is required to move heavy material than some one else who has lighter physical work to do. Similarly, one who works in the heat of a boiler room makes no greater achievement on that account than some one else who has cooler working conditions. We should make the conditions satisfactory, select persons adapted to them and pay in proportion to participation in productive accomplishment.

Attempts to evaluate a job with reference to its so-called market value, whatever that is assumed to be—the average pay for similar work, a dictated union rate or what-not—are merely pricing devices; they do not take the job's measure. Price is one thing and the scope of a man's job is something else. It is sometimes argued that the bigger the job the greater is the scarcity of people who are able to fill it, but this is not always true and is certainly no criterion in taking a job's measure.

We have seen riveters during war time paid a hundred dollars a week, and during business depression former competent executives glad to take almost any lower position because of no market for their services. A man's status in an enterprise is not based on an active market for his services outside but upon the coverage of his job inside. ***The problem of real value basically is concerned with the status of the individual in organized production through duties performed*** and this is true of the individual in any

job, high or low, and in any kind of production of commodities or services. Job evaluation should make this determination.

Must Understand Organization

ORGANIZED enterprise is the agency of production in economic life but organization as a subject of study is little pursued in the field of economics, or in the field of industrial management. A mere elementary knowledge of the subject entails concepts of differentiation and integration—coordination, unity; the difference between structure and function; their inseparable character as different aspects of organization; line and staff relationships; the nature of development as a process of organization and as a stage in organization; the difference between environment and adaptations required by it.

Ignorance of these simple concepts is widespread. Vague ideas of character traits, working conditions, social economic status and what-not are badly confused with vagaries of structure and function. Classes and groups in industry and the community—capital, labor, employer, employee, office and plant are not entities in production but are widely taken for granted as such in both industry and the community at large. The only entities in production are enterprises, and the persons in them participating by investment of capital, and by performing the various integrated human functions in the work. This and only this is organization in production—coordination, unity, cooperative undertaking.

Sequence of Jobs Relative

THE question—What does a man do and how much does it count, can be answered only in these terms—What is his job in the particular enterprise in which he works and, this being a functional entity in the larger entity—the enterprise, What is its relative scope in the functions of the enterprise? Plausible answers to these two questions must be sought in any serious attempt to identify and ascertain the relative values of the various jobs in any organization, and this and only this is job evaluation pertaining to relative effectiveness. This is taking the job's measure—by job analysis—and gauging the status of the job in the functional gradation of the jobs in the enterprise.

Functions are observable, one job covers a wider field than another. As they compare in this respect and are placed in the sequence which is established by the process of organization in the enterprise, we take their measure. To co-ordinate evaluations it is necessary to relate placements to other placements in the natural sequence of jobs established by the process of organization. The highest and lowest jobs fix the limits of the range and the number of discernible steps between. Original placements are established by an analytical survey. Afterwards, they serve as reference points or key positions for subsequent placements. This is a measuring scale with not only a number of gradations, but definitions in having the grades

represented by jobs which follow in their sequence as determined by objective analysis. Placement in such a sequence is not subject to mathematical determination as it is relative, but it is none the less real. As it applies to rates of compensation, it is a co-ordinating process, not a price fixing device.

Methods have been classified as grading systems, ranking systems, classification systems and point rating systems. This classification is faulty for lack of clear distinction. What are the differences between grading, ranking and classification? Even in point rating systems a sequence is established which is a ranking order. The real question is validity.

Points Used where Facts Inconclusive

IT MAY not be incompatible with grading jobs, as stated above, to make comparisons by point ratings if it is not otherwise obvious that one job has broader functions than another. This is true if applied to common aspects which pertain to scope of functions. It may be an aid to judgment in grading when factual evidence is not conclusive. The same aspects, however, do not pertain to all jobs. Jobs which are close together on the scale of grades can be judged from the same aspects, but lower jobs must be rated from different aspects than higher jobs. Rating by factors, therefore, does not co-ordinate the entire gradation. It lacks unity. The full scale of functions must be covered otherwise.

The so-called experienced job analyst who makes such arbitrary distinctions is like the "experienced" employment interviewer with claims to superabilities in selecting the right man for the job. Unless he is versed in the specialized knowledge and techniques of the subject, any one's judgments are largely chance shots. Every plan is declared a success by its proponents, but by what kind of standards? Taking the measure of a job requires factual evidence in two fields of knowledge, organization and human behavior. Graduation in engineering, economics, accounting, law, medicine, or other professional field does not necessarily grant a license to practice in either selecting the right people for jobs or in gauging the jobs themselves. This is a specialized field and regardless of who does the job, whether it be an individual, a committee, or a labor union the requirements of validity are the same, as in any other special undertaking.

Avoid Setting up Conflicting Groups

ONE of the outstanding tendencies in dealing with industrial relations problems in all of its fields is to disregard the principle of unity in organization. Organization means unity. We give lip service to vague ideas of cooperation, equitable wages and fair dealing but rarely carry the idea through. In fact, some of the laws and administrative plans declared to have these objectives actually tend to break down an organization into departmental and craft factions, self-conscious conflicting groups and classes. This is true of the whole theory of class structure in both

industry and the community at large. The individual is the basic unit in an organization, not a category in which he may be classed or class himself.

Most of the job evaluation plans focus on plant groups or office groups. They ignore the organization as a unity comprehending every job holder with his job functions which calls for a consistent single plan of administration for everybody, conceived by conference throughout and directed from the "top" to carry out a declared policy.

Production jobs, non-production jobs, supervisory, non-supervisory, are familiar categories and such classifications have their purposes but diversity in dealing is not a legitimate purpose. Good management means good organization and this means unity—the integration of jobs and consistency in dealing from the top down, not *breaking down* by factional groupings. It means taking the measure of every job in the work gradation by observing its contents and connections and gauging this coverage with reference to the other jobs as functional units in the organization. They are all productive in this real sense, and equitable distribution of returns means corresponding apportionment. Job evaluation is a means to this end, not a price fixing device. The income of an enterprise changes, but this does not affect its equitable distribution nor the productive status of a job.

Supervising Jobs Should Be Included

SUPERVISORY jobs, whether the term refers strictly to supervision of standard practice or to jobs in the functions of management, are quite generally set apart as though not subject to examination like rank and file jobs. These jobs consist of functions like all other jobs and likewise have their places in the work gradation within an enterprise. Supervision is more than a single function. Each job has a content subject to analysis and its coverage is comparable with other coverages in the work gradation. This cannot be gauged for all jobs by a single set of factors, as already explained. Different levels and types of work must be viewed from different angles of observation. The answer to a single question is often sufficient to show that one job is broader than another, and comparisons with several other placements in an established series are usually conclusive. It is a matter of assigning the job to its proper place in the series established by the process of organization. Supervisors are job holders like all other workers in the enterprise, not a separate group or class to be dealt with separately—unity means one policy and one plan of evaluation and administration for all.

Equitable wages is said to be the object of most job evaluation plans, but they frequently fail to recognize functional unity as the basis of consistency of treatment throughout the organization, and functional scope as the measure of participation in work and in the distribution of returns. What else could be equitable than to identify individuals with their work and distribute returns with relation to its effects.

Market Rate Does Not Really Exist

THE so-called market rate is the traditional basis of wages but no such thing in a real sense exists in modern industry, except within wide limits or under the unstable conditions of active turnover, which are inefficient and costly. Average rates and arbitrarily dictated rates, of course, do exist, but they are not clear cut market rates determined by supply and demand in an open active market in a broad field. Anyhow, such rates bear no essential relationship to *productive participation* in work nor to *availability* for payment from the income of an enterprise. Equitable participation in income from productive enterprise must be based on these two things. It is, "Enjoyment by every man of benefits commensurate with those which his own work adds to the wealth of civilization," J. D. Rockefeller, Jr.

Administrative Rates Mostly Used

REGARDLESS of price theories, salaries and wages, by and large, vary with income from which they are paid. Statistical data establish the fact that, on the whole, small income can pay and does pay smaller salaries and wages than large income. Salaries and wages actually are more than just a market price for services—in a stable enterprise they are at least some measure of participation in the returns from its productive service. It is usual to start low and advance by growing in and with an enterprise. Therefore, comparisons between different concerns show wide variations in rates of pay. Rates to a large degree have changed from a competitive character to an administrative character, and one is incompatible with the other as indicated in the table following:

INCOMPATIBILITY
of

Market Rates (a Price)	*Administration Rates* (a Share)
Ignore organization relations—job status	Conform to organization relations —job status
No plan of distribution	Follow a plan of distribution
No relation to production	Relate to income from production— *High* when income is high *Low* when income is low
Promiscuous	Relate to Individual and Group Competency
Inequitable	Equitable

Taking the job's measure in terms of relative functional coverage is evaluation as to status in the organization of production. It is necessary to a proper recognition of the status of the individual and is essential for co-ordinating rates of compensation for equitable distribution of returns.

A job is the functions of a person at work, not at a particular instant but through a considerable period of time. In some instances, certain activities recur only once a month, several months or a year. In any case, performance up to standard in various respects involving sustained attitudes must be developed and maintained through a length of time to be thoroughly effective and reliable. For this reason, length of service is justly a consideration in appraising a person's performance and granting pay increases, service benefits and privileges.

Pay Structure not Job Evaluation

In a stable organization a person's service is therefore not a standard commodity to be bought ready made in the labor market and paid for at a fixed price. An *internal* pay structure is necessary on an all inclusive basis. Human beings cannot be organized to work well together without it. It must co-ordinate returns with functions performed—co-ordinate rates of pay with job status and with income from production. A sound economic structure must be built upon what people create with recompense for what they do and how much it counts—a fair return which everybody wants and good business requires. This is essentially a process in organization. It means taking the job's measure, and giving to the job its proper place in the pay structure with latitude for recognition of the individual's proficiency in the job.

A pay structure is distinctly different from a true plan of job evaluation. It does not take the job's measure. It is a subsequent development although it depends upon taking the job's measure in order to co-ordinate base rates of compensation with functional status. The two things should not be confused, and whether or not it is justifiable to pay premiums for certain working conditions such as overtime, night work, hazard, monotony, etc., is a question of extra remuneration not pertaining to the job's measure. Moreover, taking the job's measure is necessary for considerations other than pay determination. It pertains to job identification, recognition of individual status and knowledge of the organization throughout work levels, distribution of responsibility, requirements of general ability, etc.

A Large Industrial Company Provides Complete Free Medical Care to All Its Employees and Their Families. The Overall Cost Would Seem to be About Two Cents an Hour per Employee.

Medical Care *for* Employees

Abstract of A Report
By Franz Goldmann, M.D.
Yale University School of Medicine,
New Haven, Conn.

In recent years there have been developed different schemes for providing medical care to groups of people, either on a prepayment basis, with weekly or monthly payments, or part prepayment, and part to be paid at the time of or after illness.

These plans all aim at providing groups of people with medical service at a lesser expense than individual service costs, presumably without making the doctors suffer loss of income. And of course the prepayment feature avoids the problem of paying medical bills right after illness, when earning capacity may be reduced.

Presumably these plans are the forerunners of some national scheme of health insurance, paid for out of social security taxes.

Recently several of these plans have been studied thoroughly, and we give the main features of two plans, which are of an industrial type.

Complete Care of Workers and their Families

Plan E provides complete coverage of service. The widest possible range of medical care is included, as the following tabulation shows (See Also Table IV, p. 72):

1. Physicians' care at clinic, home, or hospital, including every kind of specialists' services.
2. Dental care, with the sole exception of dentures and gold work.
3. All diagnostic laboratory services.
4. Diagnostic and all types of therapeutic x-ray services.
5. Radium treatment.

6. Physical therapy services.
7. Supply of all drugs prescribed by the physicians.
8. Hospitalization without any restrictions as to duration or type of illness.
9. Ambulance service.
10. House calls without charge.

In scope, type, amount, and duration of services the program is nearly ideal. The people who are served by the plan represent about 40 per cent of the total population of the area involved. They are families whose breadwinners are employees of a big industrial corporation. The program in its entirety is financed by the company; neither the employees nor their dependents contribute to the expenditures.

The analysis of such an all-inclusive program, operated without any restrictions, is primarily useful in disclosing the actual costs of providing a group of people with complete medical care under a system of group practice. Furthermore, the findings may serve as a yardstick for conclusions drawn from the operation of limited

TABLE I

TOTAL AVERAGE COSTS OF TWO MEDICAL CARE PROGRAMS*

(Excluding depreciation)

PLAN	SCOPE OF SERVICE	TOTAL AVERAGE COSTS PER PERSON AND YEAR EXCLUDING DEPRECIATION	AVERAGE NUMBER OF PERSONS ELIGIBLE FOR SERVICE
B	Partial coverage. Most of the fundamental diagnostic and therapeutic services, subject to certain restrictions. Arrangement for supply of drugs at extra charges.	11.30	11,000
E	Complete coverage subject to no restrictions.	20.50–21.80	51,000

* Include *all* expenses incurred by the plans, except provision for depreciation, regardless of how the patients paid for them.

programs. Finally, the experience with a program offering free and unrestricted access to all types of medical care may reveal important facts concerning demand for medical care and its bearing on costs.

This program serves a population of 51,000, being 19,000 employees of the company, each with an average of 1.7 dependents. The people using the services of this plan belong to families where the pay envelopes of most of the breadwinners average $1200 a year.

All employees are required to take a medical examination on being hired by the company. But when their families are admitted to this plan no medical examination is required of them.

Skilled Workers Set Up Plan

PLAN B takes care of 90% of the skilled workers and their families in the manufacturing department of a big plant. This is not supported by the company, but is a voluntary cooperative plan of these employees.

Average number of persons eligible for service under this plan is 11,000. The average family earnings are $1900 a year.

Following is a list of the services provided under the plan. It will be seen that they are not so full as those under plan E (See Also Table IV, page 72).

1. Physicians' care at the clinic, home, and hospital by both general practitioners and certain specialists.
2. Clinical laboratory services.
3. Diagnostic x-ray services.
4. Physical therapy services.
5. Supply of anesthetics.
6. Dressings and material needed for laboratory tests.
7. Hospitalization subject to certain restrictions.
8. Bedside nursing at the home of the patients.

Table I shows the average costs under these two plans.

TABLE II

AVERAGE COSTS OF MEDICAL SERVICE, EXCLUDING HOSPITALIZATION, DRUGS, AND DEPRECIATION, IN MEDICAL CARE PROGRAMS WITH AVERAGE NUMBER OF ANNUAL ATTENDANCES AT CLINIC AND HOME

PLAN	AVERAGE COSTS PER ELIGIBLE PERSON AND YEAR OF MEDICAL SERVICE EXCL. HOSPITALIZATION, DRUGS, AND DEPRECIATION	ATTENDANCES AT CLINIC PER ELIGIBLE PERSON PER YEAR	HOME VISITS PER ELIGIBLE PERSON PER YEAR
B	8.40	4	1.8
E	11.00–12.30*	4	0.7

* Estimated.

Costs of Other Plans

THESE costs may be compared with the following, taken from p. 129, "Health Insurance", by Louis Reed, Harper & Bros., 1937.

(1) At Fort Benning, Ga.—an army post—complete medical care was provided to a representative family population at a cost of $26.43 per capita (1930).

(2) The medical service of the Endicott Johnson Company furnished complete medical care to 15,000 workers and their families at a cost of $22.76 per person (1928).

(3) In Roanoke Rapids, N. C., a number of companies jointly maintain what is in effect a community medical service. The cost (1930) was $18.89 per capita of the population.

(4) The Homestake Mining Company furnished medical services to its employees and their families at a cost of $11.64 per capita (1930). The service was not as complete as was given by other units.

Amount of Service Rendered

HOW much actual medical service was provided under these two plans, and what were the details of costs? Table II gives this information, without including hospitalization costs.

Though Plan E made no restrictions on the type of service available at clinics, where as Plan B did, yet the number of visits to clinics was the same in both cases.

Plan E made no charge for home visits anywhere, and showed an average of 0.7 visits, while Plan B, limiting visits to within seven miles had 1.8 visits.

Periodic Physical Examinations Help

PLAN B, is in a singular position tc benefit from a well-developed periodic physical examination system, carried out apart from the medical care program. The industrial company, from which plan B draws its members, has for many years conducted and rigidly enforced periodic physical examinations of all employees. The schedule calls for general examinations of the age groups 20 to 30 every three years, 30 to 40 every two years, 40 to 50 every one and a half years, 50 to 60 every year, over 60 every six months. In addition, all workers exposed to dust, fumes, or poison are examined every six months.

TABLE III

GENERAL HOSPITAL CARE

SCOPE OF SERVICE	PLAN B RESTRICTION AS TO AMOUNT OF HOSPITAL BILL	PLAN E WITHOUT RESTRICTIONS
Average expense per eligible person and year	$2.90	$7.55
Frequency of general hospital care per 100 eligible persons and year	12.1	10.2
Average number of hospital days per eligible person and year	0.6	1.4
Average number of hospital days per hospitalized case	5	13
Average expense per hospitalized case	$24.20	$74
Average expense per hospital day	$4.75	$5.50

The volume of this preventive service does not appear in the actual case load of the clinic operated by plan B. However, there is every reason to assume that these system of periodic health examinations, as practiced at the plant in question, has already relieved the prepayment plan of many avoidable expenditures, particularly for protracted illness. In the year 1938 the frequency of sickness (from the first day of absence) was 0.46 per employee and the number of days lost due to sickness averaged 7 per employee and 15.1 per case of sickness.

Hospital Care

HOSPITAL care constitutes a big expense item in every adequate medical care program. Hospitalization is fully covered under Plan E, and conditionally under Plan B. Plan E spent $7.55 per year and Plan B $2.90 (See Table III). Plan E recorded a hospitalization frequency of more than 10 per cent. The ratios of one in ten eligible persons (plan E) and one in eight to nine eligible persons (plan B) respectively, demonstrate that general hospital care has been extended to a large proportion of the groups reached by these programs.

The average number of hospital days per eligible person was 0.6 in plan. This performance was considerably exceeded by plan E with a rate of 1.4 days. The difference is due to two circumstances. In plan B certain regulations have been established to avoid bills for protracted hospital care. Plan E has no such regulations and, in addition, took care of internal diseases comparatively often, while plan B hospitalized primarily patients with surgical and obstetrical conditions. In fact, the average found for plan E, nearly one and a half days of general hospital care per eligible person per year, is higher than that observed of the population in big urban centers such as New York City.

Average Length of Hospital Stay

FINALLY, it is desirable to know how long on the average the individual patient stayed at a hospital. While plan B paid hospital bills for an average of 5 hospital days per patient, plan E, due to its policy of providing for unrestricted stay at the hospital, bore expenses for an average of 13 days.

Plan B, hospitalizing a high percentage of eligible persons, recorded comparatively few hospital days per individual persons, namely 5. Probably this result was achieved because frequent hospitalization was emphasized. In the long run liberal provision of hospital care for incipient cases pays in reduced average length of hospital stay, and in dollars saved for the program.

The experience of plan E illustrates the basically different situation arising out of unrestricted provision for hospitalization. A relatively small number of patients with chronic illness, needing many months of treatment, noticeably increased the average number of days of care up to 13.

Provision of Drugs

PLAN B required patients to pay for drugs prescribed by physicians, but operates a pharmacy and sells drugs to patients through low cost bulk purchasing, at 20 to 25% below retail prices.

Plan E furnishes to the persons eligible for medical service all drugs free of charge at pharmacies affiliated with the clinics. One may wonder whether the easy access to free drugs has resulted in abuse of this type of service, and how much the operation of pharmacies without cash registers has cost.

The people served by plan E were found to be "medicine conscious", and fond of the drug counter just as in other places with a similar policy. The prescriptions given to the patients for presentation at the pharmacies covered, on the average, three different items. In spite of that, the average costs for filling each prescription were as low as 35 cents, salaries of pharmacists excluded. The total outlay for supplying drugs averaged $1.76 and $1.98 per person per year without and with pharmacists' salaries respectively.

This good result was obtained by wholesale buying of large quantities at big discounts, by preferentially using standard drugs carried in stock, and by avoiding compounds and proprietary remedies. To prevent patients from falling into the drug habit, or from selling their own drugs to outside people, no refills of prescriptions are made; every patient must see his physician before a prescription is filled.

Ample experience has shown the disadvantages inherent in unrestricted supply of drugs, namely, stimulation of demand for a service which may be "desirable" but not "necessary." Without exercising more than scant control, plan E has succeeded in keeping the expenses for drug supply on the remarkably low level of about $2.00 per person per year. The average costs did not run higher because they were spread among more than 50,000 people, both good and poor risks. It is this point primarily which indicates a basic condition for successful performance of one of the most intricate functions in an all-inclusive medical care program.

The above extract is from a report of an investigation made by Dr. Goldmann for a Joint Committee of the Twentieth Century Fund and the Good Will Fund, and the Medical Administration Service, Inc.

The complete report describes five plans, but only the two of these limited to workers and their families, have been described in this extract.

Copies of the complete report (Price 25¢) may be obtained from Medical Administration Service, Inc., 1790 Broadway, New York, N. Y.

TABLE IV

SCOPE OF SERVICE

TYPE OF SERVICE	PLAN B	PLAN E
Physician's care at clinic, home and hospital	Included	Included
Periodic health examination	Under separate program	Included
Maternity services	Included	Included
Total number of physicians on the staff	11	42 full-time 2 part-time
Number of full specialists on the staff	5	21
Dental care	X-ray examinations only	Dentures and gold work excluded
Number of dentists	—	5 dentists 6 dental hygienists 1 dental intern
Graduate nurses assisting at the clinic (excluding visiting nurses)	2 3 practical nurses	28
Clinical laboratory	Routine diagnostic services included Routine blood tests covered under separate program	All diagnostic services included Routine blood tests at time of entrance examination
X-ray services	Diagnostic services included	Diagnostic services included All types of x-ray treatment and radium treatment included
Physical therapy services	Included	Included
Laboratory technicians	1	4 lab. assistants, 3 bacteriologists on hospital staff
X-ray technicians	1	
Supply of drugs	Excluded Drugs available at contract pharmacy at reduced prices	Included
Anesthetics	Partly incl.	Included
Dressings	Included	Included
Material for lab. service	Included	Included
Number of pharmacists	—	7
Appliances	Excluded	Excluded
Med. and Surg. appliances	Partly incl.	Included
Eye glasses	No arrangement	Financial aid, if necessary, by affiliated welfare program
Hospitalization	Included, subject to restrictions (see "restrictions")	Included
Ambulance service	Excluded	Included
House calls	Included within 7 miles; small fees for distances beyond 7 miles	Included
Home nursing	Included	Included
Restrictions with regard to kind of illness covered under the prepayment plan	Hospital confinement only if necessary owing to abnormal conditions	None
	Excluded from coverage: Family dependents having a malignant or chronic condition prior to the member joining the plan Hospitalization charges exceeding $250 per case of sickness Oxygen tents Blood transfusion Physical therapy if not furnished at the clinic X-ray treatment Radium treatment	None

There is Still Probably Quite a Lot of "Bawling Out" of Workers in Industry Today. Though It is Obviously an Undesirable Practice, Human Beings Being What They Are, It is not Likely that It Will be Completely Abolished.

Reprimanding Employees

By James J. Jackson

Woodbury, N. J.

Not so many years ago, the man who handled the workers could rule with an iron hand. It was not uncommon to hear a supervisor shout: "Here you, get that work out by quitting time or you're fired." Any remark from the worker would bring the command, "Go get your time."

In those days the foreman ruled with fear, and the worker trembled when the boss as much as looked at him. Such methods were used in many organizations. But there has been a revolutionary change in the attitude of the supervisor toward his workers. In recent years the employee has been treated with more consideration because of a realization of his importance in the general scheme of our industrial life. The old-time, loud-shouting foreman is on the way out, and he is being replaced by the man who endeavors to understand the worker and to gain his cooperation. The reprimand is reserved for those particular situations and types of men for which it seems to be the necessary and justifiable treatment.

Who, How, When to "Bawl Out"

Under the present conditions in industry the executive should know who, how, when, and where to "bawl out." He should be sure just why he is doing it and what the results will be. Furthermore, it should be avoided if possible.

The proper use of the reprimand has become one of the most difficult portions of the repertoire of the executive. He should study all phases of the matter in an effort to become a real artist in its use for those occasions in which he believes it necessary.

Why Does the Worker Seem to Need Bawling Out?

THERE are numerous reasons for indifference or inattention on the part of the worker. Many things can happen that distract his mind from his work. Some events may have such a pronounced effect on him that he is completely "in a fog."

The man who is having trouble of some kind at home will have the problem on his mind while he is at work. It may be a wife's desire for a new car, or what the neighbor's chickens did to his garden. True, these things are not the result of any fault of his supervisor or the concern for which he works, but, whether we like it or not, the fact remains that the worker is not always able to throw off his troubles outside the workplace when the starting whistle blows.

The physical health of the worker has an influence on his ability to direct his thoughts to his work. The man who has a toothache may be rather touchy, and we can hardly blame him. The worker may be worried about some disease that he has or imagines that he has. A common cold may make him feel miserable and prevent him from doing his work as well as he otherwise would.

Financial troubles often drive men to disastrous results. The worker who faces bills as the result of illness in the family, or who cannot afford the expenses of an operation for a loved one, has worries that are serious to him and which he cannot readily throw off. Or perhaps he has become too deeply involved with his installment payments and does not see the way out.

The conditions surrounding the job may give the worker a "grouch." If he got wet on the way to work or had to walk because a snowstorm delayed traffic, he may not be in a good humor about it. Perhaps he has had some bad luck with his work and does not feel that he got results in proportion to the energy expended.

Regardless of whether the cause of the worker's indifference or inattention is home problems, health, financial difficulties, or troubles at work, or some combination of these possible causes, a bawling out usually makes matters worse. He may feel that he has enough troubles, and then the boss comes along and intensifies the condition by criticism. Where he previously had something in the back of his mind that was troubling him somewhat, he now has the supervisor "taking him for a ride" as well. It is usually the case that his work suffered more after he was reprimanded than it did before.

Who Bawls Out?

ALTHOUGH the men who seem to feel that they have to bawl out someone every once in a while may be divided into several classifications, it is often a rather safe conclusion that a feeling of inferiority is the cause of the whole trouble. The bawler out tries to cover up the fact that he is not quite sure of himself by finding fault with the words or activities of others and criticising them in a loud, rough manner. In this way he believes that he can impress the workers with his importance. He seems

to think that he can build up his own ego and thereby convince himself of his own superiority and ability.

The man who is ill or worried about his work, or other matters, does not have complete control over his emotions and is likely to lose his temper at the slightest provocation. When he gets angry, someone will be censured. The supervisor who has stomach trouble, or other physical ailments, does not feel well and cannot face his problems with the same attitude as the man who is enjoying good health. The trucker expressed it when he gave warning throughout the department by saying: "I just saw Sourpuss take some of his 'tummy' pills, so watch your step. Somebody's going to catch hell around here this morning." The worried man seems to feel that he is carrying about all the load that can reasonably be expected of him, and when he sees something else go wrong he just has "to cut loose." With him a minor incident may be "the straw that breaks the camel's back," and he relieves his feelings somewhat by taking it out on the nearest victim.

The supervisor who finds himself bawling out employees or wanting to do so very badly should make a determined effort to analyze the real cause of his trouble. He should consider whether or not he is using a brusque manner of speech when a more friendly attitude would bring better cooperation, whether or not he may be letting some illness or worry influence his attitude toward the workers, whether or not he is letting home troubles affect his feelings at the workplace, or whether or not there may be some other influence that causes his irritation. The attitude of the boss is an important thing from the point of view of the worker, and, in any case, it is part of the job of the supervisor to analyze the situation carefully for the purpose of correcting faults in his own attitude toward his employees.

When not to Bawl Out

THE worst time to reprimand a man is when there is an audience. The man is humiliated before other men, and he has no chance to defend himself or to make explanations. He is humiliated because his pride is hurt, and he has been made the object of criticism in the presence of those whose respect he would like to command.

The executive who is very tired or angry should not allow himself to attempt to reprimand an employee. The man who is in either of these conditions cannot think straight and is not always responsible for his words or actions. He is likely to say things that he would not think of saying when he is rested or has had a chance to "cool off." One very successful executive has always made it a point to avoid talking to employees when he became very tired or angry. In this way he avoided saying anything that he would regret later.

There are still some executives who consider it a personal affront or an "insult to their intelligence" for a worker to make a suggestion to them. In such cases, not only is the idea given no consideration, but the suggestor is bawled out for his pains. The results are that the employers do not get the benefit of the suggestions

when they are good ones and that the men who made them are angry about the reception that they and their ideas received. A further result is that there will be no more suggestions forthcoming. As a matter of fact, the worker who is criticised for offering suggestions will often do things that he knows are wrong rather than point out an error in his instructions.

Don't Bawl Out Honest Workers

It is an old saying that "Honesty is the best policy," but the worker questions such a statement when he has been censured after voluntarily admitting an error or taking blame that he could have avoided. It is quite true that mistakes on the part of workers are sometimes costly and are often the sources of a great deal of embarrassment to supervisors, but the man who admits an error, or takes blame that he would not have to accept, shows a dependability that is worthy of praise rather than humiliation. The man who is bawled out as a result of his honesty will not be so open and aboveboard the next time he finds that he has done something wrong that cannot be discovered readily.

Unfortunate is the position of the man who has gone ahead with his work without specific instructions and then has been reprimanded for using initiative. "Who told you to do that?" was the question asked of Dick when his boss returned from a conference and found him greasing some gears. As a matter of fact, Dick had gone ahead with the greasing because he thought he was being helpful and he had a real interest in the welfare of his employers. Dick, in telling of the incident, said: "The next time he goes away and leaves me without enough work to keep me busy, I'll find myself a good soft seat and sit there 'til he comes back, no matter if he never comes back."

A Large Item of Cost

Unless the particular circumstances justify it, and it is done in the proper manner, a reprimand is resented by most men. If you are not sure that this is true, just think for a moment how you felt the last time a policeman "dragged you over the coals" for some minor and unintentional violation of the traffic regulations, when you were out with a party of friends. It is very likely that you were rather peeved and somewhat humiliated at being bawled out in public.

Although some workers do jobs that require much hard labor, it is not necessarily true that they are "hard-boiled." On the contrary, it seems that the worker is more sensitive than the man higher up, and it is usually the case that the worker has a high degree of self-respect and pride. He is just as proud of his children, garden, and car as the man who has great wealth. He is just as proud of his workmanship as the head of a large organization. He is just as likely to resent any unfavorable remarks about himself and his possessions as is the man who is supposed to be in a more comfortable position.

It is an easy matter to criticise a man and to tell him how stupid and careless he is, but it does not necessarily follow that he will believe it. You did not agree with the officer who scolded you when you unintentionally violated the traffic regulations. The worker does not believe what is said to him when he is bawled out. On the contrary, he thinks worse things of the one who reprimanded him than what the person said about him. He resents the whole matter and thinks and acts accordingly.

Found Guilty without Being Heard

THE man who has been bawled out has been put into the position that he has been found guilty, and any thing that he may say will only make matters worse. If he keeps quiet and does not try to defend himself, he admits his guilt. At least, that is the only interpretation that can be made of the situation. If he tries to defend himself or to make an explanation, he may be quite sure that he will antagonize still more, and, if the scolding has been done publicly, he knows that it will not be good for him to prove himself innocent of the charges. In either case, he loses his pride, and his prestige among his fellows has been injured. He can only hate the one who censured him.

A worker who has been publicly or unjustly criticised loses interest in his work. He spends his time thinking about the injustice of the situation and cursing the fate that requires him to work under such conditions. Consequently, he does less work than he otherwise would, and he is not very particular about how well he does what he has to do. As well as doing some "soldiering," he is inclined to be rather careless as to the quality of his work because he does not now take pride in turning out a good job.

The other employees who know of the incident are inclined to have the same attitude toward their work as the man who was reprimanded. They lose interest in their work and are not so particular as to the amount they do or the quality. They feel that their interests are different from those of their employers. With this feeling abroad in the concern, there cannot be a cooperative spirit among the employees. The inevitable result is that labor is not performed as efficiently, materials and tools are damaged to some extent, and the property of the concern is not cared for so well as it might otherwise be. In brief, costs are increased over those that could be expected had the incident not occurred.

When to Reprimand

A VERY successful executive, who was known among his associates for his ability to obtain cooperation from his employees, was asked if he never bawled out his men. His reply was, "Very seldom, but there are conditions under which it seems to be advisable." This man realized that most men respond to severe criticism with resentment and that afterward they are worth less to their employers than they were before. It is usually found to be the case that the worker's inten-

tions are good but that a lack of knowledge or some misunderstanding has caused him to do something wrong. There are, however, conditions under which a good old-fashioned "dragging over the coals" seems to be the best solution.

It seems that some men need a good bawling out once in a while to keep them on the right path and to make them of value to their employers. A certain number of employees are just naturally lazy and require a severe "prodding" occasionally to keep them "on their toes." The "cocky" man is sometimes a disturbing element and needs "putting in his place" in order that he be of most value to his employers. Also, there is a certain type of worker who responds best to the iron-fisted rule. His skin is so thick that he respects only the supervisor who talks roughly to him. His numbers are decreasing, but there are still some men who respond best to this treatment. As in many other phases of dealing with workers, it is impossible to lay down definite rules in regard to when to reprimand, but this is a matter that can only be decided by the supervisor who has made a study of the individual case. It is one of the finer points of supervision and much of the success of the supervisor depends on his ability to discipline under the proper conditions and at the best time.

Have the Goods on Him

THERE is one rule, however, that should be followed carefully; before attempting to reprimand an employee, the supervisor should make absolutely certain that he "has the goods on him." That is, it should be known that the worker has deliberately done wrong with full knowledge that he has done so. The supervisor should make due allowances for the mental capacity of the individual worker. In any case, it is necessary that the worker cannot deny having had the opportunity to learn the proper method of procedure. He cannot, then, resent a criticism properly administered.

Another safe and very important rule that can be applied to the reprimand is that the temper should always be under control. It is granted, of course, that things sometimes happen that require immediate action. But, it is far better to postpone the reprimand, if possible, until such time as the supervisor is in absolute control of his emotions. The man who is angry can very easily say things that he does not mean and would not say if he were "cooled off." When he has lost his temper, he very likely has lost his reasoning power and cannot recognize facts when they are presented to him. Another reason that the supervisor should keep his temper under control is that by doing so he can dominate the situation in case the worker loses his temper. Furthermore, if the supervisor keeps his emotions under control, he can find a graceful way out when it develops that he was wrong in his accusation!

How to Reprimand

ANY necessary bawling out should not be done publicly. Rather, it should be done where other employees cannot hear what is said, and, if possible, where they cannot see what happens. When it is desirable to straighten a man out in

regard to his attitude or to criticise him for his activities or his work, he should be taken into a private office where there can be no interruption and where the matter can be handled without any of the unnecessary discussions of observers or listeners.

A criticism should, insofar as possible, be made impersonal rather than personal. Thus, a supervisor should find fault with an action or with work rather than with the man. Old Bill would get to the bottom of things without an argument or ill-feeling when he said: "Henry, those rotors have been coming through in pretty good shape, but, if I am correctly informed, the last lot of 340s were not so good." He made it a point to make the discussion about the work rather than the man, and the man could not take personal offence.

Old Bill carried his policy still further by letting the worker make the criticisms himself. Instead of "tellin' 'em," he asked for opinions in regard to the work. Thus, he appealed to the pride and judgement of the worker. As a rule the worker got "sore at himself" for having to bawl himself out in the presence of the boss, but he did not have to suffer the humiliation of having someone else do it, and he could get over it without resentment.

Private and Impersonal

Some men, however, do have to be told in no uncertain terms just about what their faults are. Note the "just about." Unless the offence is of such seriousness that the man cannot be kept on the payroll under any circumstances, it is better to leave him a "loophole." It is better to allow him to make an excuse or some kind of an explanation and thereby maintain his self-respect. A loophole will make this possible, but he will feel that he has had a narrow escape. His scare will in most cases be more effective than a direct accusation.

How to reprimand is a problem, but it will bring the best results when it is done privately and in as impersonal a manner as possible. An employee is usually more apt to admit his own errors than to respond well to accusations. A valuable man may be saved to the organization if he is allowed a loophole when he is bawled out.

To Avoid Reprimanding

Most supervisors dislike the task of bawling out an employee. They realize that it is a difficult problem to solve with satisfactory results to all concerned. Although it is one of the duties of the executive that cannot be eliminated entirely, there are some methods by which the task can be reduced to a large extent and by which a better feeling between employer and employee can be brought about.

Give Full Instructions

One method of eliminating much of the criticism of workers is that of telling them 'why' when instructions are given to them. To merely follow orders is more or less objectionable to any normal man, and it is a natural tendency to want

to do the work another way or even not to do it at all. When an explanation is made, however, of the reasons for doing it in a certain way or even why it should be done, much of the objectionable feeling toward following another man's instructions is done away with. The creative instinct replaces the antagonistic attitude of the man who has to follow orders blindly.

Although the outside troubles of the worker are not the concern of the supervisor, numerous cases have been known in which he was able to increase the effectiveness of the worker by letting him "blow off steam." If the worker can be encouraged to tell his troubles, he can often get his mind back on his work. To listen to the troubles of the worker occasionally does not hurt the supervisor, but he can relieve the feelings of the worker and enable him to devote his thoughts to his job.

It is characteristic of practically all human beings that they want to be appreciated, and a word of sincere praise or commendation from a supervisor will bring forth more loyalty and effort on the part of the worker than a thousand "tongue-lashings." As a matter of fact, the man who has received a kind word will (when he has recovered from the shock) make a great effort to deserve a similar expression of appreciation, whether he is a ditch digger or the president of a large corporation.

Summary

IT OFTEN happens that the worker who has some trouble on his mind appears to be in need of a bawling out, and yet such treatment would only intensify his difficulties. The supervisor who has troubles of his own is likely to resort to reprimanding as a cure for the faults of the workers when he should look for the remedy for his own ills. The worker should not be censured when there is an audience, the supervisor is tired or angry, or the worker has had good intentions. The results of bawling out are a large item of costs when extreme care is not taken as to the justice of the matter and how it is handled. Censuring should be done only when there is no other alternative and the supervisor has the goods on the worker. Then he should be reprimanded privately in an impersonal manner and in such a way that he can maintain his self-respect. Much of the criticism of workers can be avoided by a word of explanation, by an effort to understand their troubles, and by the use of a kind word.